Amendments to the Claims

Listing of Claims - This will replace all prior listings of claims in the application:

1. (Currently Amended) An ~~optimizing planer~~ infeed system for feeding an array of workpieces linearly downstream to a processing machine such as an optimizing planer, the infeed system comprising:

a workpiece feed path, operatively coupled to an optimizing planer, including means for translating the array of workpieces downstream towards a processing machine; and

means, operatively coupled to the workpiece feed path, for setting the size of gaps between successive workpieces in the array of workpieces being translated linearly into the processing ~~machine~~planer; ~~so that~~

wherein the processing machine comprises at least one of

one or more movable cutting elements; and

one or more movable guiding elements;

wherein ~~each gap~~ the means for setting the size of gaps is configured to set the gaps to ~~between successive workpieces in the array of workpieces~~ provide[[s]] enough time for at least one of the movable cutting elements ~~in the planer and~~ or the movable guiding elements to be moved to their respective optimized positions corresponding to the next successive workpiece in the array of workpieces.

2. (Currently Amended) The apparatus of claim 1 wherein ~~said each gap is optimized individually so that said~~ the gap is sized to leave only enough time for at least one of the movable cutting elements ~~in the planer and~~ or the movable guiding elements to be moved to their respective optimized position corresponding to the next successive workpiece in the array of workpieces~~is only enough time for the individual optimization of the next successive workpiece in the array of workpieces~~.

3. (Currently Amended) The apparatus of claim 1 wherein said means for setting the size of gaps includes[[:]]

~~(a) a workpiece feed path means for translating the array of workpieces downstream towards the planer, and~~

~~(b)~~ means for accelerating a workpiece ~~speed of the workpiece~~ along, and cooperating with, said workpiece feed path ~~means~~ so as to control said size of gaps.

4. (Original) The apparatus of claim 3 further comprising workpiece transportation means for transporting the workpiece downstream from said means for accelerating workpiece speed, downstream to the planer.

5. (Currently Amended) The apparatus of claim 3 further comprising:

~~the~~ an optimizing planer~~;, and further comprising~~

workpiece interrogation means for interrogating ~~the~~ a workpiece to determine workpiece data corresponding to attributes of the workpiece, and

a workpiece optimization system that receives the workpiece data corresponding to attributes of the workpiece from said workpiece interrogation means, determines an optimized cutting solution for the ~~work piece~~ workpiece, and sends control instructions to said means for accelerating a workpiece ~~speed~~.

6. (Currently Amended) The apparatus of claim 3 wherein said means for accelerating a workpiece ~~speed~~ includes one or more of a fixed speed transverse acceleration device, a variable speed transverse acceleration device, a vertical acceleration device, a fixed speed linear acceleration device, and a variable speed linear acceleration device.

7. (Original) The apparatus of claim 5 wherein said workpiece interrogation means includes one or more of a linear workpiece interrogator and a transverse workpiece interrogator.

8. (Currently Amended) The apparatus of claim 4 wherein said workpiece transportation means includes one or more of a fixed speed intermediate transport device[[,]] and a variable speed intermediate transport device.

9. (Currently Amended) The apparatus of claim 3 wherein said workpiece feed path ~~means~~ includes one or more of a sheet feeder, a fixed speed lug transfer and a variable speed lug transfer.

10. (Currently Amended) The apparatus of claim 1 further comprising a trimmer with trim decision information corresponding to one or more of the successive workpieces;

wherein the setting of said size of gaps ~~includes~~ is determined in part by the trim decision information~~wood to be trimmed downstream in a trimmer according to an optimized trim solution~~.

11. (Original) The apparatus of claim 1 further comprising means for determining in-piece gap-reduction for a successive series of workpieces in the array of workpieces wherein said means for setting the size of gaps between successive workpieces cooperates with said means for determining in-piece gap-reduction so as to reduce said size of gaps where an optimized planing solution for a downstream workpiece in said successive series of workpieces provides for in-piece setting of the cutting elements within said downstream workpiece so as to pre-position the cutting elements for commencing an optimized planing solution for a next adjacent upstream workpiece in said successive series of workpieces, whereby said size of gap between said downstream and upstream workpieces is a reduced size of gap.

12. (Currently Amended) The apparatus of claim 11 wherein said reduced size of gap is reduced to a substantially zero gap.

13. (Original) The apparatus of claim 5 wherein said workpiece optimization system further comprises means for determining in-piece gap-reduction for a successive series of workpieces in the array of workpieces, wherein said means for setting the size of gaps between successive workpieces cooperates with said means for

determining in-piece gap-reduction so as to reduce said size of gaps where an optimized planing solution for a downstream workpiece in said successive series of workpieces provides for in-piece setting of the cutting elements within said downstream workpiece so as to pre-position the cutting elements for commencing an optimized planing solution for a next adjacent upstream workpiece in said successive series of workpieces, whereby said size of gap between said downstream and upstream workpieces is a reduced size of gap.

14. (Original) The apparatus of claim 13 wherein said reduced size of gap is reduced to substantially zero gap.

15. (Currently Amended) The apparatus of claim 1 further comprising:

(a) workpiece sensing means ~~to~~ for sensing[[e]] one or more of the position, velocity and acceleration of a workpiece in the array of workpieces upstream of the planer; and

(b) a control system that receives data from said workpiece sensing means and using said data from said workpiece sensing means, controls said size of gaps to do one or more of establish, ~~and/or~~ control and[[/or]] correct a minimum required gap between each pair of successive workpieces of the array of workpieces.

16. (Cancelled)

17. (Withdrawn) A method of optimizing the infeed to an optimizing planer comprising:

(a) feeding a series of workpieces downstream towards the planer;

(b) accelerating each workpiece in the series of workpieces to provide a gap and corresponding time between successive workpieces in the series sufficient for optimized setting of cutting elements in the planer.

18. (Withdrawn) The method of claim 17 further comprising the steps of:

(a) interrogating each workpiece and creating unique workpiece property information corresponding to the workpiece;

(b) transporting each workpiece to the planer; and

(c) controlling the cutting operation of the planer for each said workpiece based upon said workpiece property information corresponding to the workpiece.

19. (Withdrawn) The method of claim 17 further comprising the steps of:

(a) sensing one or more of the position, velocity and acceleration of a workpiece as the workpiece is fed or transported downstream to the planer and collecting corresponding data therefrom; and

(b) controlling the acceleration of each workpiece to establish and/or control and/or correct a minimum required optimized gap between the workpieces.

20. (Withdrawn) The method of claim 19 further comprising the steps of

(a) determining in-piece gap-reduction for a successive series of workpieces in the array of workpieces, wherein said means for setting the size of gaps between successive workpieces cooperates with said means for determining in-piece gap-reduction so as to reduce said size of gaps, and

(b) determining a corresponding optimized planing solution for a downstream workpiece in said successive series of workpieces thereby providing for in-piece setting of the cutting elements within said downstream workpiece so as to pre-position the cutting elements for commencing an optimized planing solution for a next adjacent upstream workpiece in said successive series of workpieces, whereby said size of gap between said downstream and upstream workpieces is reduced.

21. (New) The apparatus of claim 1, wherein said size of gap includes a safety factor.

22. (New) The apparatus of claim 5 further comprising:

(a) workpiece sensing means for sensing one or more of the position, velocity and acceleration of a workpiece in the array of workpieces upstream of the planer; and

(b) a control system that receives data from the workpiece sensing means and controls the size of gaps to do one or more of establish, control, and/or correct a minimum required gap between each pair of successive workpieces in the array of workpieces.

23. (New) The apparatus of claim 22 wherein the control system and the workpiece optimization system are combined into a singular gap optimization system.

24. (New) An infeed system comprising:

a workpiece feed path adapted to operatively couple to a processing machine to feed an array of workpieces;

one or more workpiece acceleration devices, operatively coupled to the workpiece feed path, for adjusting the speed of a workpiece in the array of workpieces;

one or more workpiece sensors for determining one or more of the position, velocity and acceleration of a workpiece in the array of workpieces;

a control system that receives the data from the one or more workpiece sensors and adjusts the speed of the one or more workpiece acceleration devices in order to set the gap between successive workpieces in the array of workpieces.

25. (New) The infeed system of claim 24, wherein the gap between successive workpieces in the array of workpieces is set to allow enough time for one or more of movable cutting elements or movable guiding elements in the optimizing planer to be moved to their respective optimized positions corresponding to the next successive workpiece in the array of workpieces.